PATENT COOPERATION TREATY

o:	NATIONAL SEARCHING AUTHORITY			PCT		
see form PCT/ISA/220				WRITTEN OPINION OF THE INTERNATIONAL SEARCHING AUTHORITY		
					(PCT Rule 43bis.1)	
				Date of mailing (day/month/year)	see form PCTASA/Z10 (second sheet)	
Applicant's or agent's file reference see form PCT/ISA/220				FOR FURTHER ACTION See paragraph 2 below		
nterr	national application N /EP2004/052532	lo.	International filing date (day/month/year)	Priority date (day/month/year) 27.10.2003	
Inten	national Patent Class	ification (IPC) or	both national classification	and IPC		
207	C49/84, C07C45	46, C07C45/	64, C07C45/81, C08F	200		
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10/577194

WRITTEN OPINION OF THE INTERNATIONAL SEARCHING AUTHORITY

International application No. PCT/EP2004/052532

			IAP20 RECOURTED 28 APP 2006
_	Box No	o. i Basi	is of the opinion
1.	14724	anard to th	e language, this opinion has been established on the basis of the international application in which it was filed, unless otherwise indicated under this Item.
	. lar (u	nguage Inder Rule	has been established on the basis of a translation from the original language into the following , which is the language of a translation furnished for the purposes of international search s 12.3 and 23.1(b)).
2.	With re	egard to a	ny nucleotide and/or amino acid sequence disclosed in the international application and claimed invention, this opinion has been established on the basis of:
	a. type of material:		al:
		a sequer	nce listing
		table(s)	related to the sequence listing
	b. forn	nat of mat	erial:
		in writter	n format
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		containe	ed in the international application as filed.
		filed tog	ether with the international application in computer readable form.
		furnishe	d subsequently to this Authority for the purposes of search.
3	h	nas been fi xopies is id	in the case that more than one version or copy of a sequence listing and/or table relating thereto led or furnished, the required statements that the information in the subsequent or additional lentical to that in the application as filed or does not go beyond the application as filed, as , were furnished.
4	. Additi	ional comi	nents:

Box No. V Reasoned statement under Rule 43*bls*.1(a)(i) with regard to novelty, Inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

Novelty (N)

Yes: Claims

1-11

No:

Claims

Inventive step (IS)

Yes: Claims

1-11

No: Claims

Industrial applicability (IA)

Yes: Claims

1-11

No: Claims

2. Citations and explanations

see separate sheet

10/577194 International application No.

WRITTEN OPINION OF THE INTERNATIONAL SEARCHING AUTHORITY (SEPARATE SHEET)

PCT/EP2004/052532

1A720 R36 (1 G.L. T.O & J. APR 2006

Re Item V

Reasoned statement with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Documents

Reference is made to the following documents:

D1: EP-A-0 003 002 (CIBA GEIGY AG) (1979-07-11)

D2: US-A-3 340 233 (LEAVITT FREDERICK C) (1967-09-05)

2. Subject matter

Claims 1-7 define a process for the preparation of 2-hydroxy-1-(4-(4-(2-hydroxy-2-methyl-propionyl)-phenoxy)-phenyl)-2-methyl-propan-1-one via a Friedel Grafts reaction of diphenylether with an alpha-bromoisobutiryl bromide or alpha-chloroisobutiryl chloride, followed by hydration of the halide, and finally a crystallization step. The 2-hydroxy-1-(4-(4-(2-hydroxy-2-methyl-propionyl)-phenoxy)-phenyl)-2-methyl-propan-1-one is also claimed as a white powder in claim 8 and the use of the white powder as a photoinitiator in photopolymerizable systems in claims 9-11.

3. Novelty

The document D1 discloses (see abstract, tabel 1, compound 21 and pages 28-29) 2-hydroxy-1-(4-(4-(2-hydroxy-2-methyl-propionyl)-phenoxy)-phenyl)-2-methyl-propan-1-one as a wax, to be used as photoinitiator in photopolymerizable systems. The preparation is also disclosed and includes a bromination, the formation of an intermediate epoxide and the hydrolysis of the epoxide to give the desired compound. The subject-matter of D1 differs from the subject-matter of the preparation claims 1-7 in that a different process in used. Moreover, the final product is a white solid in the application, whereas a wax is obtained in D1. Therefore, the subject matter of independent claims 1,8,9 and 11 is novel over D1 (Article 33(2) PCT).

The document D2 discloses (see examples 1 and 6) the Friedel Crafts reaction of diphenylether with beta-chloropropionyl chloride. The subject-matter of D2 differs from the subject-matter of the preparation claim 1 in that only the first reaction (Friedel Crafts reaction) is disclosed. No 2-hydroxy-1-(4-(4-(2-hydroxy-2-methyl-propionyl)-phenoxy)-phenyl)-2-methyl-propan-1-one is prepared. Therefore, the subject matter of independent claims 1,8,9 and 11 is novel over D2 (Article 33(2)

WRITTEN OPINION OF THE INTERNATIONAL SEARCHING AUTHORITY (SEPARATE SHEET)

PCT/EP2004/052532

PCT).

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4. Inventive step

The document D1 is regarded as being the closest prior art to the subject-matter of independent claim 1,8,9 and 11 and shows (see abstract, tabel 1, compound 21 and pages 28-29) the preparation of 2-hydroxy-1-(4-(4-(2-hydroxy-2-methyl-propionyl)-phenoxy)-phenyl)-2-methyl-propan-1-one as a wax, to be used as photoinitiator in photopolymerizable systems. From this, the subject-matter of the independent claims 1 differs in that 2-hydroxy-1-(4-(4-(2-hydroxy-2-methyl-propionyl)-phenoxy)-phenyl)-2-methyl-propan-1-one is obtained as a solid product via a different sequence of reaction steps, including a crystallization step. The subject-matter of the independent claims 8,9 and 11 differs from D1 in that no solid product is used as a photoinitiator in photopolymerizable systems.

The problem to be solved by the present invention may be regarded as the preparation of a solid 2-hydroxy-1-(4-(4-(2-hydroxy-2-methyl-propionyl)-phenoxy)-phenyl)-2-methyl-propan-1-one and the use of this compound, in an different physical form, as a photoinitiator.

The solution to this problem proposed in claim 1,8,9 and 11 of the present application is considered as involving an inventive step (Article 33(3) PCT) for the following reasons:

Document D1, or any other document in the prior art, does not suggest the preparation of solid 2-hydroxy-1-(4-(4-(2-hydroxy-2-methyl-propionyl)-phenoxy)-phenyl)-2-methyl-propan-1-one via a Friedel Crafts, hydration and crystallization step, nor is the use of this solid as a photoinitiator suggested. Thus, given the teaching of the prior art, the skilled person would not consider solving the problem in the same way as the present application. Therefore, the solution proposed in independent claims 1,8,9 and 11 of the present application can be considered as involving an inventive step (Article 33(3) PCT).

Claims 2-7 and 10 are dependent on claims 1 and 9 respectively and as such also meet the requirements of the PCT with respect to novelty and inventive step.